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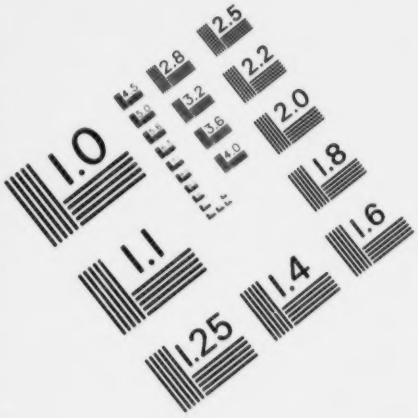

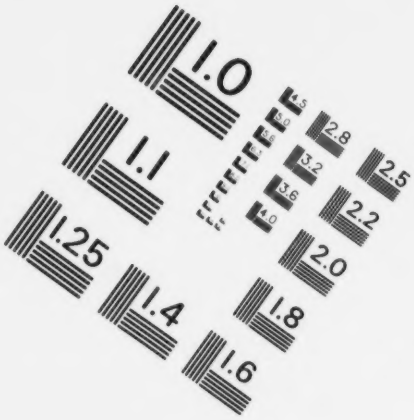

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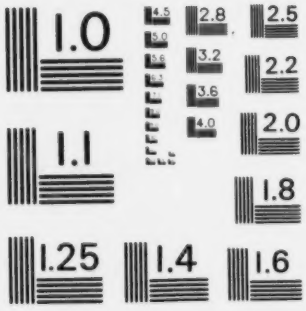

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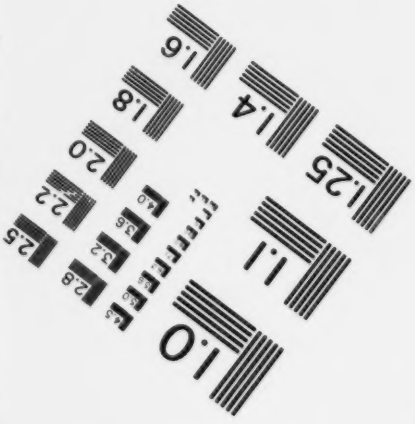

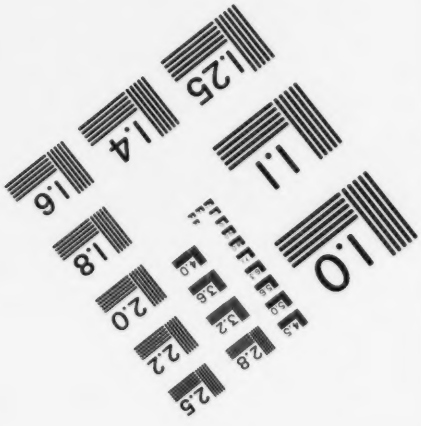

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ELECTRONIC DATA INTERCHANGE

Outline of possible uniform rules on the legal aspects of electronic data interchange (EDI)

Note by the Secretariat

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INTRODUCTION

1. At its twenty-fourth session, in 1991, the Commission was agreed that the legal issues of electronic data interchange (EDI) would become increasingly important as the use of EDI developed and that the Commission should undertake work in that field. 1/ The Commission was agreed that, given the number of issues involved, the matter needed detailed consideration by a Working Group. Pursuant to that decision, the Working Group on International Payments devoted its twenty-fourth session to identifying and discussing the legal issues arising from the increased use of EDI.

2. At its twenty-fifth session, in 1992, the Commission had before it the report of the Working Group on International Payments on the work of its twenty-fourth session (A/CN.9/360). In line with the suggestions of the Working Group, the Commission was agreed that there existed a need to investigate further the legal issues of EDI and to develop practical rules in that field. It was agreed that, while no decision should be made at that early stage as to the final form or the final content of the legal rules to be prepared, the Commission should aim at providing the greatest possible degree of certainty and harmonization.

3. After discussion, the Commission endorsed the recommendation contained in the report of the Working Group (ibid., paras. 129-133) and entrusted the preparation of legal rules on EDI to the Working Group on International Payments, which it renamed the Working Group on Electronic Data Interchange. 2/

4. This note has been drafted with a view to facilitating the continuation of the debate initiated by the Working Group at its previous session on some of the issues that might be included in a set of uniform rules on the use of EDI in international trade. The note was prepared subsequent to the meeting of a group of experts convened by the Secretariat and it reflects the deliberations of that group of experts. The list of issues in this note is based on the list of legal issues discussed by the Working Group at its previous session. It was felt by the Secretariat that, in view of the remaining decisions to be made by the Working Group as to the nature and scope of the uniform rules, it was premature to prepare draft provisions for discussion at the twenty-fifth session of the Working Group. However, in order to ensure that a first set of draft provisions can be prepared for discussion by the Working Group at its twenty-sixth session, this note presents to the Working Group, on a number of issues, various provisions in draft or final form, of a contractual or statutory nature, that were prepared by other bodies interested in the legal issues of EDI. Some of the ideas expressed in this note were also drawn from the discussion of the issues of electronic funds transfers as they were considered by the Commission and the Working Group in the early stage of the process that culminated in the adoption by the Commission, at its twenty-fifth session, of the UNCITRAL Model Law on International Credit Transfers.

1/ Report of the United Nations Commission on International Trade Law on the work of its twenty-fourth session, Official Records of the General Assembly, Forty-sixth Session, Supplement No. 17 (A/46/17), paras. 306-317.

2/ Report of the United Nations Commission on International Trade Law on the work of its twenty-fifth session, Official Records of the General Assembly, Forty-seventh Session, Supplement No. 17 (A/47/17), paras. 140-148.

5. With respect to electronic funds transfers, the Commission decided in 1986 that, by addressing the relevant issues and suggesting possible solutions at an early stage of implementation of a newly developed technique such as electronic funds transfers, model rules could influence the development of and help prevent disparities in national practices and laws. 3/ Similarly with respect to EDI, it may be noted that several countries have started to consider whether and to what extent the existing law should be modified. It could be expected that in the near future other countries will embark on a review of the adequacy of the existing law in this area. Co-ordination of these national efforts may be expected to reduce the likelihood of incompatible legal regimes.

6. With a view to overcoming the difficulties that might stem from an attempt to prepare uniform rules at an early stage of technical or commercial development, the Commission decided in 1986 that the rules should be flexible and should be drafted in such a way that they did not depend upon specific technology. 4/ It is suggested that a similar approach might be taken by the Working Group with regard to the issues of EDI.

I. SCOPE AND FORM OF UNIFORM RULES

A. Substantive scope of application

1. Notion of EDI

7. The issue has been examined in a previous note by the Secretariat (see A/CN.9/WG/IV/WP.53, paras. 25-33). It also formed part of the preliminary discussion of the legal issues of EDI at the previous session of the Working Group (see A/CN.9/360, paras. 29-31).

8. At its previous session, the Working Group was generally agreed that, in addressing the subject matter before it, the Working Group would not have in mind a notion of EDI that was limited to the electronic exchange of information between closed networks of users that had become party to a communication agreement in which they had agreed on the manner in which they would communicate by means of EDI. Rather, the Working Group would have in mind a notion of EDI encompassing also open networks that allowed EDI users to communicate without having previously adhered to a communication agreement, thus covering a variety of trade-related EDI uses that might be referred to broadly under the rubric of "electronic commerce" (see A/CN.9/360, para. 28). It was decided to leave the matter of a specific definition of EDI to a later stage because a panoramic view of the issues involved would place the Working Group in a better position to consider a definition of EDI (see A/CN.9/360, para. 29). In view of the remaining uncertainties as to the content of the notion of EDI, the Working Group may find it appropriate to resume its discussion of the definition of EDI, a discussion which, for lack of time, it could not complete at its previous session, after it ended its general review of the legal issues involved.

3/ Report of the United Nations Commission on International Trade Law on the work of its nineteenth session, Official Records of the General Assembly, Forty-first Session, Supplement No. 17 (A/41/17), para. 230.

4/ Ibid., para. 231.

9. It may be recalled that almost all definitions of EDI currently in use, or suggested for use, among EDI users (see A/CN.9/WG.II/WP.53, paras. 26-32) somehow limit the scope of EDI to computer-to-computer communications and to data transmitted in a standardized format. Such narrow definitions of EDI would probably not cover situations where the exchange of information did not involve computers only but also involved, at least at one end of the transmission, direct intervention by a human operator. Another consequence of the adoption of a narrow definition of EDI might be to exclude from the scope of "EDI" the exchange of freely formatted data, for example data transmitted by means of a telecopier or electronic mail.

10. Such a restrictive approach to EDI is found in a regulation adopted in France for the application of a 1990 statute that validates, under certain conditions, the use of electronic invoices (see A/CN.9/350, para. 56 and footnote 14). That regulation interprets the statute as excluding from its sphere of application the use of telex and telecopies. 5/

11. A more comprehensive approach, apparently favoured by the Working Group at its previous session, is based on consideration of the users' need for a consistent set of rules to govern various communication techniques that might, in practice, be used interchangeably (e.g., narrowly defined EDI and electronic mail). Thus, while encouraging the use of modern technology, the legal rules to be prepared should not attempt to impose specific communication techniques but rather to accommodate them all. Under such an approach, which may be described as "media-neutral", differences in rules governing different communication techniques would mainly be justified by possible differences in the reliability of the various techniques.

12. With such a broad notion of the issues to be covered, the Secretariat suggests that, as regards terminology, it might be misleading to continue making reference to the term "EDI". The Working Group may wish to consider whether new terminology might be adopted that would reflect more accurately the extensive scope and the various layers of issues currently considered under the term "EDI". It is submitted that wording mentioning "paper-less trade" might be more appropriate, although the current practice of EDI seems unlikely to result in complete disappearance of paper-based documents.

13. As regards the scope of the legal rules to be prepared by the Commission, it may be noted that commercial law issues arising in the context of EDI can be divided into three categories: those that are common to all forms of electronic data transfer (e.g., proof of transactions), those that are unique to narrowly defined EDI (e.g., formation of contracts by means of interactive EDI) and those general commercial law issues that are as relevant in paper-based exchange of data as they are in EDI (e.g., time and place of formation of contracts where the contracting parties are not in each other's presence). The Working Group may wish to consider that different types of rules may be appropriate for each of the three categories, thus suggesting a distinction between the issues of narrowly defined EDI and other issues of telecommunications. It may be recalled that, for the purpose of devising adequate technical standards, such a distinction was introduced in the ISO/IEC Open-edi Model developed within the International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC).

5/ See "Instruction du 27 décembre 1991 sur la télétransmission des factures", in Bulletin officiel de la Direction générale des impôts (BOI), 10 January 1992, p. 6.

That model relies on distinctions drawn between such terms as "EDI", "edi" and "Open-edi" (see A/CN.9/WG.IV/WP.53, para. 32). In that connection, it may be noted that in the ISO/IEC Model "Open-edi" is "open" in the sense that all the requirements for inter-working among enterprises world-wide across industry sectors are governed by publicly available, non-proprietary standards and rules. The Working Group may wish to clarify whether the ISO/IEC definition of "Open-edi" matches the concept of "Open networks" that was envisaged by the Working Group at its previous session (see above, para. 8).

14. It may be noted that the terminology that will eventually be retained by the Working Group may have an impact not only on the scope but also on the substance of the uniform rules. In a letter received by the Secretariat containing comments by one of the authors of the ISO/IEC Open-edi Model on the Report of the Working Group on the work of its twenty-fourth session, it was suggested that the legal issues pertaining to open-edi might be much easier to address and resolve than those of electronic data in general. As an example of such difficulties, rules may have to prepared for the case where information transmitted to the end recipient through a chain of intermediaries was not transmitted in the form of a narrowly defined EDI message along the entire chain. While rules confined to narrow EDI might address the segments of the chain where the information was transmitted by means of a standardized message only, additional rules might be needed to address the segments of the chain where the transmission was effected, for example, by means of telecopy of a computer printout made by a human operator.

2. Domestic and international transactions

15. At its previous session, the Working Group briefly addressed the question whether possible uniform rules on EDI should be limited in scope to international transactions. The Working Group decided that the focus of its work should be on legal issues raised by the use of EDI in international trade, in line with the approach taken in previous work by the Commission. It was noted that such a focus, depending upon the form of work, might entail the need to establish a test for internationality and would not exclude the possibility of use in a domestic environment of any rules prepared by the Commission (see A/CN.9/360, para. 25).

16. A legislative technique limiting the scope of a legal regime to international transactions works best when such transactions can be clearly distinguished from domestic transactions. In some cases certain domestic aspects of an international transaction cannot be ignored. If a special international legal regime is desired, that legal regime will nevertheless have to include the domestic aspects of the transaction that cannot be ignored. The alternative is to adopt harmonized or unified rules governing all transactions of the type in question, whether domestic or international.

17. In the case of international trade transactions involving the use of EDI, it would not be possible, in many cases, to construct a legal regime that addresses the relationship between the originator or the final recipient of an EDI message and any communication network operator processing the message, without including some domestic elements. As a result it may be thought that the preparation of the uniform rules, while focusing on the legal issues of EDI in international trade, might proceed on the assumption that they will apply to both domestic and international trade transactions involving the use of EDI.

3. Consumer transactions

18. At its previous session, without attempting to define EDI, the Working Group adopted a broad notion of EDI and discussed whether that notion should be interpreted as encompassing consumer transactions. After discussion, the Working Group was agreed that issues of consumer law should be expressly excluded from the scope of uniform rules on EDI. In the same vein, it was stated that the reference to "open networks" should not be interpreted as covering systems open to the public for consumer transactions, such as point-of-sale systems (see A/CN.9/360, para. 31).

19. If consumer transactions are to be excluded from the scope of the legal rules to be prepared, the Working Group may feel that a definition of a "consumer transaction" would have to be given. The definition could be based on the characterization of the originator or of the recipient of an EDI message, e.g., only a party who was characterized as a commercial party or as an agency of the State might be considered to make commercial use of EDI. The definition could also be based on the purpose of the transaction involving the use of EDI, as it was in the United Nations Convention on Contracts for the International Sale of Goods (hereinafter referred to as the United Nations Sales Convention), where sales of goods for personal, family or household use were excluded.

20. Alternatively, the Working Group may feel that it would be inappropriate to embark on defining a consumer transaction. If this were the case, the Working Group might adopt the approach already taken in the UNCITRAL Model Law on International Credit Transfers, where consumer transactions are dealt with by means of a footnote to article 1 (Sphere of application). The footnote reads as follows:

> "This law does not deal with issues related to the protection of consumers".

B. Form of uniform rules

21. The need for, and the substance of, a number of rules to be considered for possible inclusion in the uniform rules depend in part on the future form of the uniform rules. In making the necessary working assumptions, it may be borne in mind that the Commission endorsed the recommendation made by the Working Group that the aim of the Commission with respect to the legal issues of EDI should be to provide the greatest possible degree of certainty and harmonization (see above, para. 2). It is therefore suggested that the Working Group might proceed on the working assumption that the uniform rules will be in the form of statutory provisions. When reviewing each specific legal issue of EDI, the Working Group may wish to discuss whether that issue lends itself to the preparation of a statutory provision. It may also wish to discuss whether, as an alternative for, or in addition to, such a statutory provision, another type of provision would be desirable. Other possible types of provisions might include guidelines for legislators, rules for optional use by EDI users or model contractual clauses.

22. As to whether the statutory provisions to be prepared should be embodied in a model law or in an international convention, it is further suggested that the Working Group might adopt as a temporary working assumption that the form of a model law would be preferable, as the form best suited to preserve the necessary degree of flexibility. That assumption might need to be revised if any provision contained in the uniform rules were to conflict with an existing international convention, for example the United Nations Sales Convention.

II. DEFINITIONS AND GENERAL PROVISIONS

A. Definitions

23. Definitions of certain terms will be necessary, especially since there may be a discrepancy in the terms used for both legal purposes and telecommunication purposes in different countries. Important policy choices are often reflected in the terms chosen and the definitions given to those terms. The following are terms and types of terms that might be defined.

1. Parties to an EDI transaction

24. The principal variables to be considered in choosing the terms to be used in describing the parties to an EDI transaction include: (1) whether the parties are to be described in terms of the content of EDI messages (e.g., offeror, offeree) or in terms of the flow or the order of EDI messages (e.g., originator, recipient of the data); (2) whether the parties are to be described in terms of the entire communication process or in terms of a particular segment of the transmission chain (e.g., sender, recipient of an EDI message). It may be noted that the terminology adopted in the UNCITRAL Model Law on International Credit Transfers is based on a distinction between the credit transfer and the series of payment orders that constitutes the credit transfer.

25. The number of terms used should be kept to a minimum consistent with clarity, particularly in view of the fact that the same party may be described by several terms depending on the point of view (i.e. the first recipient of an EDI message might be the sender of a message to the second recipient). This may make it more difficult to know which party is being referred to. However, it may make it easier to state legal rules governing all parties who act in a similar way. For example, a "sending party" may be required to take certain precautions whether that party is the originator of the communication process, a network operator or any other third-party service provider.

2. EDI, EDI message and other terms

26. As was suggested in a previous part of this note (see paras. 7-14), the definition of EDI and EDI message would be an important factor in the determination of the sphere of application of the uniform rules. In addition, depending on the decisions that will be made as to the content of the uniform rules, definitions of such terms as "to send", "to receive", "to give notice" and other paper-based terms might be needed for the purposes of the uniform rules. Should the uniform rules address the legal situation of third parties providing communication facilities or value-added services, definitions of those terms would also be necessary.

B. General provisions

1. Party autonomy under the uniform rules

27. Under the approach taken in recent years by EDI users in most countries, solutions to the legal difficulties raised by the use of EDI have been sought mostly within contracts (see A/CN.9/WG.IV/WP.53, paras. 93-96). No matter how detailed the uniform rules, or specific national legislation, might be, many questions arising in the use of EDI will continue to be governed by contracts between trading partners and network operators and between the trading partners themselves. A number of public and private bodies have developed models for such contracts, thus contributing to a proliferation of model

interchange agreements. However, it may be pointed out that one difficulty inherent in the use of communication agreements results from uncertainty as to the weight that would be carried by some contractual stipulations in case of litigation. The general discussion carried out by the Working Group at its previous session makes it clear that one purpose of uniform rules on EDI would be to enable potential EDI users to establish a valid and secure EDI relationship by way of a communication agreement within a closed network.

28. The existence of these contracts raises several questions that might be considered in the uniform rules. The uniform rules might state to what extent the uniform rules themselves are intended to be mandatory (if adopted by a State) and to what extent they could be varied by contract. Pursuant to the approach taken by the Working Group at its previous session, the uniform rules might contain a general recognition of party autonomy. Such a provision is contained in article 4 of the UNCITRAL Model Law on International Credit Transfers, which reads as follows:

"Variation by agreement

Except as otherwise provided in this law, the rights and obligations of parties to a credit transfer may be varied by their agreement".

29. However, since contracts between network operators and their customers are almost always prepared by the network operators and, with rare exceptions involving large customers, the network operators will not negotiate special terms with their customers, these contracts present a classic example of contracts of adhesion. The uniform rules might, therefore, provide for some means of ascertaining the fairness of the contract terms and the extent to which they would be enforceable. Such a means might be specific to the uniform rules or might partake of more general means of controlling contracts of adhesion.

2. Interpretation of the uniform rules

30. Rules of interpretation can be of several types. A standard provision in recent conventions on international trade law calls for regard to be given to the international character of the convention and the need to promote uniformity in its application. Furthermore, along the lines of article 7 of the United Nations Sales Convention, a rule may be included to provide that matters governed by the convention but not expressly settled by the convention are to be settled in conformity with the general principles on which the convention is based. However, decisions to be taken as to the content of a possible rule of interpretation may depend upon the final form of the uniform rules. The inclusion of such a rule of interpretation might be considered less appropriate if the uniform rules were in the form of a model law.

31. Another question to be discussed with respect to interpretation is whether the uniform rules should provide standards by which to interpret individual acts or declarations by the parties to an EDI transaction. In that connection, it may be recalled that article 8 of the United Nations Sales Convention provides for standards by which to interpret statements made by a party. Such standards include: (1) the intent of the party where the other party knew or could not have been unaware what the intent was; (2) the understanding that a reasonable person of the same kind as the other party would have had in the same circumstances. It is submitted that such standards may be particularly needed in the context of EDI relationships.

3. Arbitration

32. At its previous session, the Working Group was agreed that further consideration should be given to facilitating the access of parties to arbitration in the context of trade relationships involving the use of EDI. In particular, it was suggested that consideration should be given to EDI procedures for concluding arbitration agreements and to statutory provisions supporting the validity of such arbitration agreements.

4. Conflict of laws

33. EDI messages may traverse communication networks in several countries, particularly in view of the practice of multi-national companies to use central computer facilities in a country that may have no connection with the place of business of any of the parties to a given commercial transaction or with any other factor relevant to that commercial transaction.

34. At its previous session, the Working Group was agreed that, in the context of the preparation of a future instrument on the legal issues of EDI, attention should be given by the Commission to the questions of the law applicable to EDI relationships (see A/CN.9/360, para. 126). In this regard, it was suggested that parties to an EDI relationship should have complete freedom to determine the law applicable to that relationship. The view was expressed, however, that party autonomy in this regard should be limited by considerations of international public order so that a choice-of-law clause should not be used as a means of avoiding application of fundamental legal principles. Another suggestion was to establish a conflict-of-laws rule providing that, in the absence of a contrary agreement, one national law would be applicable to various segments of an EDI transaction and providing a method for the determination of that law.

35. It may be recalled that the solution adopted in article Y appended to the UNCITRAL Model Law on International Credit Transfers relies on a distinction between the credit transfer as a whole and the individual payment orders issued for the purpose of the credit transfer. Under that article, the law of the State of the receiving bank applies to the payment order unless otherwise agreed by the parties. As a consequence, the laws applicable may differ from one payment order to another. The Working Group may wish to discuss whether, in the context of EDI communications, the same distinction should apply or whether a more unitary approach would be acceptable.

III. FORM REQUIREMENTS

A. General remarks

36. Specific questions, which might affect the scope of the uniform rules, should be raised in the context of a discussion on the way in which applicable form requirements can be made compatible with the use of EDI.

37. A first question relates to a possible distinction to be drawn between the admissibility of EDI messages in commercial arbitration or judicial proceedings and the acceptance and use of such messages by administrative authorities. A brief discussion of the issue by the Working Group at its previous session revealed that applicable rules and approaches employed in the two types of fora tended to differ. In the administrative sphere, the focus tended to be on the gathering of information and greater discretion on the part of the administrative authority, with generally less emphasis than in the

sphere of judicial or arbitration proceedings on evidentiary rules and procedures. At the same time, there were instances in which administrative and regulatory statutes (e.g, tax and securities laws) imposed particular requirements that had potential evidentiary implications. Among the requirements of this type that were most prevalent were obligations imposed on commercial entities to maintain business records for accounting and tax purposes. In some countries the use of EDI for such purposes was expressly sanctioned, subject to conditions such as the intelligibility and unalterability of electronic records. In the legislation of other countries, however, permission to use EDI was specifically tied to the eventual production of paper documents (see A/CN.9/360, para. 47). The Working Group was agreed that recommending changes in administrative rules at the national level would not be an appropriate focus of work by the Commission. At the same time, it was recognized that recommendations that were made with respect to the removal of obstacles to the use of EDI at the international level might help to foster the removal of such obstacles in the administrative sphere. The Working Group may thus wish to discuss whether a specific provision is needed to limit the scope of the uniform rules regarding admissibility of data presented in the form of EDI messages to commercial arbitration and judicial proceedings. Such a limitation would exclude relationships involving public authorities. It is submitted that the Working Group may also wish to discuss a possible alternative approach, relying on a more integrated concept of admissibility and aimed at providing standards applicable also in the context of relationships involving public authorities. Such an integrated approach, while implying consideration of administrative regulations, might be necessary to overcome form requirements imposed by public authorities, which were identified as one of the main obstacles to the increased use of EDI (see A/CN.9/333, paras. 38-41).

38. A second question is whether the uniform rules should expressly limit their scope of application to commercial relationships established for the trade of goods and services, to the exclusion of transactions for which, in a number of countries, some form of public authentication or registration is required. Examples of such transactions involve, for example, the sale of real estate and registered moveables such as aircrafts and vessels. It is suggested that it might be inappropriate for the uniform rules to attempt regulating transactions involving such procedures, for the purpose of which no EDI practice seems likely to develop in the foreseeable future.

B. Functional equivalent for "writing"

39. The issue has been addressed in previous reports and notes prepared by the Secretariat (see A/CN.9/333, paras. 20-28; A/CN.9/350, paras. 68-78 and A/CN.9/WG.IV/WP.53, paras. 37-45). It also formed part of the preliminary discussion of the legal issues of EDI at the previous session of the Working Group (see A/CN.9/360, paras. 32-43).

1. Mandatory requirement of a writing

40. At its previous session, the Working Group recognized that, when dealing with possible impediments to the use of EDI posed by writing requirements found in national laws, it might be appropriate to extend the definition of "writing" to encompass EDI techniques, thereby facilitating the fulfilment of those requirements through the use of electronic means. The aim of this approach, sometimes referred to as a "functional-equivalent approach", should be to enable and validate, rather than to impose, the use of EDI (see above, para. 11). It was proposed that a definition of writing along the following lines should be considered:

"Writing includes but is not limited to a telegram, telex and any other telecommunication which preserves a record of the information contained therein and is capable of being reproduced in tangible form."

41. An extended definition of "writing" would still rely on an analogy between EDI messages and written documents and it would not create the entirely new concept that is sometimes said to be needed to accommodate the most advanced uses of EDI. However, such an extended definition would not preclude further investigation to determine which new concept might be appropriate. It may also be noted that an extended definition of "writing" would help to address the wide variety of situations where EDI relationships remain comparable to paper-based relationships.

42. The purpose of an extended definition of "writing" is to validate the use of any means of telecommunication to the only exclusion of purely oral communication. It is submitted that, in the proposed definition, the requirement that a "writing" should be capable of being reproduced in tangible form may not be needed since the requirement that a record of the information be preserved would seem to fulfil the purpose of the definition. Furthermore, in the proposed definition, the word "tangible" might be susceptible to such a narrow construction that a text displayed on a visual screen might not be considered as "writing". For that reason, it might be preferable to use words such as "human readable". A "human readable" reproduction of a computer record, while capable of being observed by human eyes, might be in the form of codes, symbols or data that would not be directly understandable to non-specialists. Such forms should not constitute an obstacle to the validation of computer records insofar as they were capable of being interpreted, for example by application of the procedures already used when documents written in a foreign language are introduced in court proceedings.

43. In that connection, the Working Group might wish to discuss a definition of the word "document", part of which was mentioned and noted with interest by the Working Group at its previous session (see A/CN.9/360, para. 48). The definition, prepared for use by Australian federal courts reads as follows:

"'Document' includes:

(a) any of, or any part of, the following things:

(i) any paper or other material on which there is writing;
(ii) a map, plan, drawing or photograph:
(iii) any paper or other material on which there are marks, figures, symbols or perforations having a meaning for persons qualified to interpret them;
(iv) any article or material from which sounds, images or writings are capable of being reproduced with or without the aid of any other article or device;
(v) any article on which information has been stored or recorded, either mechanically or electronically;
(vi) any other record of information; or

(b) any copy, reproduction or duplicate of such a thing; or

(c) any part of such a copy, reproduction or duplicate".

44. It is submitted, however, that, consistent with a "media-neutral" approach, the Working Group might avoid focusing on the definition of the concept of "writing" or related concepts such as "document" (see A/CN.9/360,

para. 49). Instead, it might consider stating the conditions under which, where applicable law requires any data to be presented in "writing" or in the form of a "document", the requirement shall be deemed to be fulfilled.

45. The extended definition of "writing" proposed at the previous session of the Working Group is inspired by many other existing definitions of "writing" (see A/CN.9/333, paras. 13-14), which list means of communication capable of producing acceptable equivalents to paper or the corresponding acceptable physical mediums supporting the data. The Working Group may wish to discuss whether such an approach should be retained, particularly in view of the concern expressed at the previous session that the definition should not be drafted narrowly, thereby possibly excluding future advances in technology not currently envisaged (see A/CN.9/360, para. 37). Should EDI messages be included in such a list, a definition of an "EDI message" might be needed (see above, para. 26).

46. A solution to the problem of foreclosing advances in technology, in line with the "functional approach" recommended by the Working Group at its previous session, may be to avoid focusing in the provision on particular modes of communication and, instead, to focus on the essential functions that were traditionally fulfilled by writing but could now be fulfilled through the use of EDI techniques. In that connection, it may be recalled that among the reasons for the requirement of a writing, for example in the context of the conclusion of a contract, are a desire (1) to reduce disputes by ensuring that there would be tangible evidence of the existence and nature of the intent of the parties to bind themselves; (2) to help the parties be aware of the consequences of their entering into a contract; (3) to allow for the reproduction of a document so that each party would hold a copy of the same data; (4) to allow for the authentication of data by means of a signature; (5) to permit third party reliance on a document that would be legible to all; (6) to facilitate subsequent audit for accounting, tax or regulatory purposes.

47. The Working Group may wish to consider whether it would be appropriate to develop a concept based on such an approach. A concept of that type is currently under study within the Subcommittee on Electronic Commercial Practices of the American Bar Association. The work of the Subcommittee is not aimed at amending any existing definitions of "writing". Instead, it develops a different concept (temporarily labeled "X") that would encompass writing and other media. The definition under study reads as follows:

> "'X' is 1) intentionally created
> 2) symbolic representation
> 3) of information
> 4) in objectively observable form or susceptible to reduction to objectively observable form
> 5) with potential to last indefinitely".

48. The reference to "intentional creation" might be misinterpreted as an attempt to introduce in the definition of an equivalent for "writing" an element of certainty as to the intent of the issuer to be bound by the content of the message. When addressing that issue, it is submitted that a clear distinction should be drawn between the "intentional creation" of an equivalent to "writing" and the intention of the sender of an EDI message to be bound by the content of the message. A useful reference for the determination of the conditions under which the sender of an EDI message is bound by the content of the message may be found in article 5 of the UNCITRAL Model Law on International Credit Transfers, which sets forth the obligations of the sender of a payment order (see below, paras. 82-86).

3. Contractual definition of a writing

49. The Working Group may wish to discuss whether, in addition to a general provision on party autonomy (see above, para. 28), it would be useful to envisage a statutory provision to the effect of eliminating the doubts that might exist in some legal systems as to the validity of privately agreed definitions of "writing".

C. Authentication of EDI messages

50. The issue has been addressed in previous reports and notes prepared by the Secretariat (see A/CN.9/265, paras. 49-58; A/CN.9/333, paras. 50-59; A/CN.9/350, paras. 86-89; and A/CN.9/WG.IV/WP.53, paras. 61-66). It also formed part of the preliminary discussion of the legal issues of EDI at the previous session of the Working Group (see A/CN.9/360, paras. 71-75).

51. The Working Group may wish to discuss whether the uniform rules should require EDI messages to be authenticated. It may be thought appropriate to require by law, for example, that EDI messages intended to carry out the same functions as paper originals be authenticated. However, it may be noted that in the context of EDI communication as in the context of paper-based communication, commercial partners should be free to exchange information that is not authenticated but merely bears an indication of origin (e.g., a letterhead). As regards the messages or types of messages that should be authenticated, the Working Group may wish to discuss whether the uniform rules should set forth mandatory or acceptable forms of authentication.

52. Additional issues to be discussed with respect to the requirement, or use, of authentication procedures are: whether the uniform rules should state the consequences of not following the prescribed or agreed form of authentication; what those consequences should be with respect to the legally binding effect of the message; and what the consequences of use of a fraudulent or forged authentication should be (see below, paras. 82-86).

53. While it might be thought appropriate to require by law that certain EDI messages be authenticated, it may be thought less appropriate for the form of the authentication to be specified, as signature has often been specified in the past, since there are many possible means to authenticate an EDI message and new means will evolve in the future. Consideration might be given as to whether it would be possible and appropriate to provide criteria by which to measure the adequacy of the form of authentication used. The identification of uniform criteria is particularly needed in view of the possibility that national authorities might provide different types of authentication procedures or different criteria by which to measure the adequacy of each type of authentication of EDI messages in use.

54. It may be noted that a number of recent international instruments envisage functional equivalents to the handwritten signature to be used in the context of electronic transmissions. Those provisions generally provide an extended definition of "signature", such as the following definition found in Article 5(k) of the United Nations Convention on International Bills of Exchange and International Promissory Notes:

> "'Signature' means a handwritten signature, its facsimile or an equivalent authentication effected by any other means".

However, other instruments such as the 1958 Convention on the Recognition and Enforcement of Foreign Arbitral Awards rely on the concept of "agreement in

writing", being defined as an agreement "signed by the parties or contained in an exchange of letters or telegrams" (Article II).

55. At the previous session of the Working Group, the discussion focused on the functions traditionally performed by a handwritten signature on a paper document. It was observed that one function of a signature was to indicate to the recipient of the document and to third parties the source of the document. A second function of a signature was to indicate that the authenticating party approved the content of the document in the form in which it was issued and intended to be bound by the content of the document.

56. Various techniques (e.g., "digital signature") have been developed to authenticate electronically transmitted documents. Certain encryption techniques can authenticate the source of a message, and also verify the integrity of the content of the message. In choosing among such authentication methods, attention is to be paid to the costs involved, which might vary considerably according to the extent of computer processing that is required. Such costs need to be weighed against the presumed benefits in choosing the appropriate mode of authentication and different levels of authentication would probably need to be considered by EDI users for different types of transmissions.

57. At its previous session, the Working Group was generally agreed that there existed a need to eliminate the mandatory requirements of signatures in EDI communications. It was also agreed that there existed a need to promote the use of electronic authentication procedures regarding the source and the content of EDI messages, and that such procedures should be adapted to the nature of the message. Parties should be allowed to determine the nature of such authentication procedures within the realm of commercial reasonableness. Wide support was given to the idea that legislative provisions might be needed to establish the principle of "commercial reasonableness".

Commercially reasonable standard of authentication

58. It may be noted that Article 5 of the UNCITRAL Model Law on International Credit Transfers relies on the concept of "authentication" or "commercially reasonable authentication" and provides that the purported sender of a payment order would normally be bound by the payment order if the agreed authentication procedures had been complied with.

59. When establishing a "commercially reasonable" standard of authentication, a number of elements are to be borne in mind. The commercial reasonableness of a given standard of security applied for the authentication of a given EDI message may vary considerably depending on (1) the existence and nature of contractual relationships between the parties; (2) the status and size of the parties; (3) the nature of their trade activity; (4) the frequency at which commercial transactions take place between the parties; (5) the kind and size of the transaction; (6) the status and function of signature in a given statutory and regulatory environment; (7) the capability of the communication systems and (8) the authentication procedures set forth by communication system operators.

60. A study was recently mandated by the French government to compare the levels of security afforded by traditional paper-based signature and by authentication techniques used in an electronic environment. The study concluded that the most sophisticated authentication techniques available in the context of EDI (e.g., techniques based on public-key cryptography) which authenticate the source of a message and also verify the integrity of the

content of the message, perform functions equivalent to the functions of the procedures regarded as the most secure in the context of manual signature requirements (e.g., certified or other forms of registered signature), whether the manual signature be required for validity purposes or for evidentiary purposes. At the opposite end of the spectrum, the study suggested that techniques used with a low level of security in an electronic environment (e.g., authentication by means of a personal identification number ["PIN"]), perform functions equivalent to those of procedures used with a low level of security in a paper-based environment (e.g., signatures reproduced by stamp, symbol, printing, facsimile, perforation or other mechanical devices). Such low-level authentication techniques identify the origin of a message but do not secure personal identification of the sender or verification of the content of the message. The study concluded that any attempt to regulate authentication in an electronic environment should be based on a hierarchy of the various levels of "electronic signature". While the most secure procedures might be regarded as an equivalent for the handwritten signature, the least secure might be regarded as creating a rebuttable presumption that the message is authentic. 6/

61. It is submitted that it might be inappropriate for the Working Group to attempt defining the "commercial reasonableness" of an authentication procedure by reference to any specific technique. In that connection, it is also submitted that, when dealing with the issue of authentication in general, the Working Group should not assume that all EDI users will use techniques relying on some form of public or private trusted third party or central registry. While parties to an EDI relationship should be free to use any third-party provider of authentication services, it might be considered inappropriate for the uniform rules to encourage the use of such methods of authentication for the reason that, in a number of factual situations, the intervention of a third party for the sole purpose of authenticating EDI messages might be seen as the unjustified addition of a layer or requirements and of related costs to the transaction chain. Furthermore, in certain cases involving public registry systems, such authentication techniques might be regarded as creating unjustified trade barriers.

62. The Working Group may find it appropriate, however, to state in a provision of the uniform rules that the existing requirements that documents be signed or authenticated are deemed to be fulfilled if the purported sender or recipient of a message complies with the security procedures which are: agreed upon by the parties; set up by applicable communication system rules; or commercially reasonable under the circumstances. A provision might also state that, in determining whether security procedures are commercially reasonable under the circumstances, factors to be considered include: compliance with applicable system rules; size and sophistication of the parties; type of data being exchanged; the reasons why a signature requirement is imposed by law; the magnitude of any transaction resulting of the interchange; the availability and cost of security techniques.

63. As regards widely used means of communication that inherently provide a low level of authentication (e.g., telecopy), it may be noted that, in some countries, information transmitted through such media, while not generally accepted as equivalent to the communication of a paper original, might still

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6/ A copy of the study by M. Devys, entitled "Du sceau numérique ... à la signature numérique", was communicated to the Secretariat. The study is to be published in Actualité juridique - Droit administratif, November 1992.

carry legal effect such as interrupting a prescription or other time period provided that authentication of the information is subsequently given to the recipient. The Working Group may wish to discuss whether receipt of a telecopy should be considered as creating a presumption that the original information was received, subject to later confirmation of the communication in a properly authenticated manner.

D. Requirement of an original

64. The issue has been addressed in previous reports and notes prepared by the Secretariat (see A/CN.9/265, paras. 43-48; A/CN.9/350, paras. 84-85; and A/CN.9/WG.IV/WP.53, paras. 56-60). It also formed part of the preliminary discussion of the legal issues of EDI at the previous session of the Working Group (see A/CN.9/360, paras. 60-70).

65. At the previous session of the Working Group, it was generally agreed that the notion of an original was of little relevance in the EDI context. It was felt that the more appropriate notion was that of a "record" that could be translated into readable form. A "functional-equivalent" approach was taken to the purposes and functions of the traditional paper original with a view to determining how those purposes or functions could be fulfilled through EDI techniques.

1. Functional equivalent

66. The traditional purposes and functions of originals are centered around the notion that a party bringing suit or otherwise asserting rights based on an underlying document must have the original, or sufficient reason for loss of the original, so as to ensure that that party was indeed endowed with the rights being asserted. Other purposes include ensuring the availability of the best possible evidence, and authentication of transactions. There are also cases in which the original could not be found. For such cases, legal systems often provide ways to recreate the original, thus demonstrating that the need for an original is not absolute.

67. It is submitted that the function of an original is to ensure the highest possible level of authenticity of the information and that, for the purpose of establishing a functional equivalent that would be relevant in an EDI environment, the requirement of an original may be considered as a variant of a requirement that the data be properly authenticated.

68. The uniform rules might thus provide that the requirement for an original (other than an original document of title or negotiable instrument) is satisfied where evidence is given that the EDI message or message printout reproduces the message as sent, as received or as stored. Such a functional equivalent should set standards to ensure that the means of authentication in use ascertain that an EDI message that is received is the same message that was sent, verifies the integrity of the message, and ensures non-repudiation of the message by the sender. A key measure in this regard is the "digital signature" (see above, para. 56). This technique involves the partial or total encryption of a message in order to verify that it is from the purported sender and that it has not been altered, and could be used by the recipient to prevent the sender from denying transmission of the message.

69. In addition, the uniform rules might provide that such authenticated messages should be protected against alteration after receipt and storage. A priority rule might be needed to solve the situation where conflicting versions of a message (i.e., the message as sent, as received or as stored)

would be presented. Such a rule might need to establish a distinction between the case where the information is to be submitted or maintained in original form. An issue to be addressed in that connection is the possibility that regulatory authorities would require maintenance of the necessary software to interpret the documents filed.

2. Contractual rules

70. Under some national laws, doubts may exist as to whether a contractual definition of an "original" could validly deviate from a statutory provision listing a limited number of circumstances where a copy could be substituted for the normally required original with the same evidential value. The Working Group may thus wish to discuss whether, in addition to a general provision on party autonomy (see above, para. 28), it would be useful to envisage a statutory provision validating privately agreed definitions of "original".

E. Evidential value of EDI messages

71. The issues of the admissibility and weight of computer-generated evidence have been addressed in previous reports and notes prepared by the Secretariat (see A/CN.9/265, paras. 27-48; A/CN.9/333, paras. 29-41; A/CN.9/350, paras. 79-83; and A/CN.9/WG.IV/WP.53, paras. 46-55). They also formed part of the preliminary discussion of the legal issues of EDI at the previous session of the Working Group (see A/CN.9/360, paras. 44-59).

72. While the issues of the admissibility and weight of computer-generated evidence may be raised in the context of both arbitral and judicial proceedings, it may be noted that the problem is more acute in the judicial sphere than in arbitration, where the powers conferred upon the arbitral tribunal often include the power to determine the admissibility and weight of any evidence.

1. Admissibility of EDI-generated evidence

73. In some legal systems where there are, in principle, obstacles to the admissibility of computer records as evidence in judicial proceedings, such obstacles stem from an exhaustive list of acceptable evidence, which may exclude computer records totally or provide that a computer record may be relied upon only as a rebuttable presumption as to the facts in the case. In common law countries, obstacles to the admissibility of computer records stem from the fact that, in principle, a court cannot receive "hearsay evidence" as evidence. However, some common law countries have accepted computer print-outs as falling within the business records exception to the hearsay-evidence rule.

74. In view of the complexity and possible uncertainty that might result from the above-mentioned legal requirements on evidence, the uniform rules might contain a general provision establishing that computer-generated evidence is admissible in the same way as information embodied in paper documents. Such a general provision might expressly exclude EDI messages from the scope of application of existing requirements regarding the "written" or "original" form of admissible evidence or prohibitions of "hearsay evidence".

2. Weight of EDI-generated evidence

75. It was generally felt by the Working Group, at its previous session, that, while an agreement could probably be reached as to admissibility of

evidence in a strict sense (i.e., the right of parties to produce electronic records in the context of trials or administrative procedures), difficulties would remain as to the criteria to be applied in the weighing of the evidential value of such records by courts or administrative authorities (see A/CN.9/360, para. 50).

76. In some countries where parties to commercial disputes are generally permitted to submit any type of evidence that is relevant to the dispute, specific rules have been established governing the introduction of electronic evidence. Such requirements are aimed at establishing the intelligibility, reliability and credibility of the evidence, focusing specifically on the method of entry of the information and the adequacy of protection against alteration. In quite a number of countries in this group, should a question arise as to the accuracy or value of the electronic evidence, it is left to the court to weigh the extent to which the evidence should be relied upon. Such an assessment of the quality of electronic-based evidence may either be left entirely to the discretion of the court or based on factors including the degree of security in the system that produced the evidence, its management and organization, whether it is operating properly and any other factors deemed relevant to the reliability of the evidence.

77. In those countries in which reliance on computer-generated evidence might only be possible by way of the "business records" exception to the hearsay rule, the proponent of the evidence would typically have to demonstrate that the information was compiled in the normal course of business and would have to describe the chain of events involving the compilation of the information and leading up to the point when the evidence assumed its current form, so as to ascertain the integrity and reliability of the system producing the evidence. In some cases the testimony of an expert might have to be tendered to certify the reliability of the evidence.

78. It is submitted that the approach taken in all the above-mentioned legal systems focuses on the reliability of the computer systems and on the reliability of the data. At its previous session, the Working Group held that, in view of the significant diversity in national legal approaches to questions of evidence, it would not be advisable to attempt to enunciate detailed models for statutory provisions. Rather, it would be preferable to recommend that, to the degree possible, obstacles to the admission of EDI evidence should be removed. At the same time, the concern was voiced that, in order to be effective in providing guidance, such a recommendation should not be overly general (see A/CN.9/360, para. 50).

79. As to the specific content of a recommendation, a question to be considered by the Working Group is whether it is desirable to embark on the setting of general requirements as to the proper maintenance and reliability of computer systems. As to the reliability of the data contained in a given message, it is suggested that the issue may appropriately be dealt with within the rules on the level of security and authentication to be met by legally binding messages. A minimum standard of security may be particularly helpful as regards the issues of evidence. In view of the costs often involved by expert certification as referred to above, the Working Group might wish to establish a presumption of admissibility and validity of EDI messages where evidence would be given that the prescribed security procedures were complied with.

80. The Working Group may also envisage the desirability to link the evidential questions with the ultimate question of fact being put to the trier of fact as was suggested at the previous session (see A/CN.9/360, para. 51).

For example, if the sole issue was whether a party had received notice, the inquiry would be limited to whether the EDI message had been received; if the question was whether the sender was binding itself through the message, the questions of authenticity and verification would have to be considered.

3. Contractual rules

81. In view of the possibility that private agreements on the form of evidence might still be invalid in some countries, the Working Group may wish to discuss whether, in addition to a general provision on party autonomy (see above, para. 28), it would be useful to envisage a statutory provision to the effect of eliminating the doubts that might exist in some legal systems as to the validity of privately agreed rules on acceptable means of evidence.

IV. OBLIGATIONS OF PARTIES

A. Obligations of the sender of a message

82. The Working may wish to base its discussion on the text of the UNCITRAL Model Law on International Credit Transfers. The basic rule in article 5(1) is that

> "A sender is bound by a payment order or an amendment or revocation of a payment order if it was issued by the sender or by another person who had the authority to bind the sender".

83. The Model Law does not attempt to determine the circumstances under which another person would have authority to bind the sender. That question must be answered under the otherwise applicable law. The converse of the rule stated in article 5(1) is that the purported sender is not bound by a payment order that was not sent by the purported sender or by a person who had the authority to bind the purported sender. That remains the rule under the Model Law where the authentication procedure used is the "mere comparison of signature". In such a case the traditional rule prevails that the receiving bank bears the risk of forgery. The provision leaves open the question as to when a "mere comparison of signature" becomes something more, thereby bringing the authentication procedure under the rules in the Model Law that were developed for authentication of electronic payment orders. The receiving bank also bears the risk that a payment order is unauthorized in the unlikely case that no authentication procedure has been agreed between the bank and its customer.

84. The most important situation considered in preparing that article of the Model Law was in respect of unauthorized electronic payment orders. When the authentication procedure gives the proper result, the receiving bank cannot distinguish between an authorized payment order and one that is not authorized. Article 5(2) provides that, where the authentication procedure is something other than the "mere comparison of signature", the purported sender is bound by the payment order, even though the payment order was not sent by, or by a person who had the authority to bind, the purported sender if

> "(a) the authentication is in the circumstances a commercially reasonable method of security against unauthorized payment orders, and
>
> (b) the receiving bank complied with the authentication".

85. The Model Law does not attempt to delineate what would be a commercially reasonable method of security against unauthorized payment orders (see above, paras. 58-63).

86. Where the unauthorized payment order is the result of the actions of a person who was associated with either the sender or the receiving bank, article 5(4) goes on to allocate the loss to that entity. Article 5(4) reads as follows:

> "(4) A purported sender is, however, not bound under paragraph (2) if it proves that the payment order as received by the receiving bank resulted from the actions of a person other than
>
> (a) a present or former employee of the purported sender, or
>
> (b) a person whose relationship with the purported sender enabled that person to gain access to the authentication procedure.
>
> The preceding sentence does not apply if the receiving bank proves that the payment order resulted from the actions of a person who had gained access to the authentication procedure through the fault of the purported sender."

B. Obligations subsequent to the transmission

87. The issue has been examined in previous reports (see A/CN.9/333, paras. 48-49; A/CN.9/350, para. 92 and A/CN.9/WG/IV/WP.53, paras. 80-81). At its previous session, the Working Group agreed to include the legal issues of communication on the list of possible future work (see A/CN.9/360, para. 125).

1. Functional acknowledgement

88. Several of the rules and model communication agreements recently developed include special provisions encouraging systematic use of "functional acknowledgements" and verification procedures. An acknowledgement of receipt helps to eliminate a number of problems regarding ambiguities or misunderstandings, as well as errors in the communication process. Communication agreements often differ concerning the characteristics of the functional acknowledgement they require. Furthermore, they differ concerning the consequences they attach to the sending of an acknowledgement or to the failure to acknowledge.

89. It is submitted that the use of functional acknowledgements is a business decision and that the uniform rules should not impose any acknowledgement requirement any more than it should impose the use of a given security procedure. However, it may be noted that, in the perspective of EDI communications being carried out in an open environment, default rules on acknowledgement might be necessary.

90. In that connection, it should be made clear that the mere acknowledgement of receipt of a message does not in itself bind the party that acknowledges, unless otherwise agreed between the parties. Acknowledgement of receipt of a message merely indicates that a message has been received and should not be confused with any decision on the part of the receiving party as to agreement with the content of the message. If an acknowledgement is sent, however, it can be expected to create a presumption that a message was received, and received without defects such as omissions or errors in format or syntax.

91. When discussing the possible preparation of default rules on acknowledgement, the Working Group might base its discussion on article 3(4) to 3(8) of the draft "Computer code" (hereinafter referred to as the draft NRCCL Computer code) prepared within the Norwegian Research Center for

Computers and Law (NRCCL). The article reads as follows:

"Article 3. Contract Formation

(4) Any party may request the acknowledgement of receipt of the message from the receiver.

(5) Acknowledgement of receipt should be given without undue delay, and at the latest within one business day following the day of receipt of the message to be acknowledged.

(6) The receiver of such a request is not entitled to act upon the received message, until an acknowledgement has been given.

(7) If the message is an offer, the acceptance should also be regarded an acknowledgement, when given without undue delay.

(8) When the sender does not receive the acknowledgement of receipt within the time limit, he is entitled to consider the message null and void on so advising the receiver."

92. It is submitted that draft article 3(7) may constitute too strict a rule since there seems to be no reason to preclude certain forms of delayed acceptance from producing legal effect. For example, as the case is envisaged in article 18(3) of the United Nations Sales Convention, practices which the parties may have established between themselves or usage may provide that, in a contract for the sale of goods, an offeree may indicate assent by performing an act, such as one relating to the dispatch of the goods or the payment of the price without notice to the offeror.

93. Draft article 3(8) is intended to address the situation where the computer of the recipient of a message did not acknowledge receipt and the recipient was unaware of that situation. The receipt of a notice would inform it of the situation. Upon notification that a message is considered to be null and void, the sender should not be liable for any reliance on the message by the recipient. Such a rule might be needed to avoid a situation where a message would be considered null and void in all cases where timely acknowledgement was not received by the sender. Should a message be null and void in all such cases, a party might be discouraged to use EDI for the sending of any message it had an obligation to send under a contractual or other relationship. In such a case, the recipient, by deciding to send or not to send an acknowledgement of receipt, would be in a position to affect the legal situation of the sender. The merit of the rule suggested in draft article 3(8) is that the absence of an acknowledgement does not delay the legal effectiveness of the message. The rule preserves the rights of the sender if, by means other than an acknowledgement of receipt, the sender can prove that the message was received.

2. Record of transactions

94. Whether or not to keep records of transactions is a business decision to be made within the limits set forth by the requirements of national law.

25/ Rolf Riisnaes, "EDI and National Legislation - Teresa (86)", International Chamber of Commerce, Document No. 460-10/Int.43 (14 February 1992).

However, it is submitted that a basic rule might be needed to ensure that electronic keeping of records is admitted in the same way as paper records.

V. FORMATION OF CONTRACTS

95. The issues of contract formation have been examined in previous reports (see A/CN.9/333, paras. 60-75, A/CN.9/350, paras. 93-108 and A/CN.9/WG/IV/WP.53, paras. 67-78). They also formed part of the preliminary discussion of the legal issues of EDI at the previous session of the Working Group (see A/CN.9/360, paras. 76-95).

A. Consent, offer and acceptance

96. At its previous session, the Working Group focused its discussion of the topic on the situation where parties were bound by an agreement that was concluded prior to the establishment of an EDI relationship and that expressly allowed them to conclude future contracts through the exchange of EDI messages (see A/CN.9/360, para. 76). It is thus submitted that the Working Group might envisage the preparation of a uniform statutory provision to ensure that in all legal systems parties would be allowed to agree validly on the establishment of such master agreements.

97. The Working Group was also agreed that future work was needed to determine the scope and content of a possible set of legal rules to be applied in the absence of an agreement by the parties (e.g., a bilateral agreement or general rules set forth by a network operator). It was agreed that particular consideration in this respect should be given to the fact that EDI users needed certainty as to applicable legal rules and that the need to rely on interpretation of traditional rules on paper-based transactions might not be satisfactory in that respect (see A/CN.9/360, para. 86). The uniform rules might contain a general provision to validate contracts formed through paper-less means of communication. Such a rule might state that contracts can validly be concluded by any means including but not limited to electronic or optical means of transmission.

98. It is commonly admitted that the questions of offer and acceptance might be of particular importance in an EDI context since EDI creates new opportunities for the automation of the decision-making process leading to the formation of a contract. Such automation might increase the possibility that, due to the lack of a direct control by the owners of the computer, a message would be sent, and a contract formed, that did not reflect the actual intent of one or more parties at the time when the contract was formed. Automation also increases the possibility that, where a message was generated that did not reflect the sender's intent, the error would remain unperceived both by the sender and by the receiver until the mistaken contract had been acted upon. The consequences of such an error in the generation of a message might be greater with EDI than with traditional means of communication, in view of the possibility that the mistaken contract would be automatically executed.

99. At the previous session of the Working Group, examples were given of situations where contracts might be formed through EDI without human intervention (see A/CN.9/360, paras. 83-85). It was suggested that a person having, or deemed to have, final control over the computer application should be deemed to have approved the sending of all messages dispatched by that application. Another suggestion was that, irrespective of whether consent to the formation of a given contract had in effect been expressed, all consequences of the operation of a computer system should be borne by the

person who had taken the risk of operating that system (see A/CN.9/360, para. 81). It was suggested that the computer that had been programmed to react automatically to an offer by an act of acceptance was not, in fact, consenting to the formation of the contract but merely establishing that the will of the offering party had meshed with the will of the accepting party. It was noted that the offeror whose offer had apparently been accepted had no way of knowing whether the apparent acceptance resulted from human or automatic intervention. More generally, it was stated that both parties should be able to rely on the apparent offer and the apparent acceptance that had been exchanged between their computers. It was suggested that a rule might be elaborated to that effect (see A/CN.9/360, para. 84).

100. It was also agreed that there might be a need to state in the uniform rules that, unless otherwise agreed, when a contract was formed as a result of the operation of a computer program, a party that executed the contract should give express notice of the formation of the contract to the other party (see A/CN.9/360, paras. 85-86).

101. As regards the content of the above-suggested rules, attention may be given to the approach taken in the draft "Principles for International Commercial Contracts" prepared by the Institute for the Unification of Private Law (hereinafter referred to as the UNIDROIT Principles), which read as follows:

"Article 2.16 (Form of the contract)

(1) Nothing in these Principles requires a contract to be concluded in or evidenced by writing. It may be proved by any means, including witnesses.

Article 3.1 (Validity of mere agreement)

A contract is concluded, modified or terminated by the mere agreement of the parties, without any further requirement."

102. In the same vein, the draft NRCCL Computer code reads as follows:

"Article 3. Contract Formation

1. Contracts can validly be concluded and proven by any means.

2. An offer or a response to an offer, made by EDI, becomes effective when it is made available to the information system of the other party.

3. A contract made by EDI will be considered to be concluded at the time and at the place where the message constituting the acceptance of an offer is made available to the information system of the receiver.

If the message is temporarily stored in, or occasionally passes through, a facility in a third country, the location of the information system interpreting and processing the message should be regarded as the place of contract conclusion."

B. Time of formation

103. It may be recalled that, when dealing with the issue of time of formation of contracts in the context of EDI relationships, two solutions are most commonly found in legal systems (see A/CN.9/333, paras. 72-74): the receipt rule and the dispatch rule. According to the dispatch rule a contract is

formed at the moment when the declaration of acceptance of an offer is sent by the offeree to the offeror. According to the receipt rule, a contract is formed at the moment when the acceptance by the offeree is received by the offeror. At its previous session, the Working Group noted that that question was one of the important issues that could be settled in a communication agreement, in the absence of mandatory provisions of statutory law. As an example of such a contractual provision, article 9.2 of the "TEDIS European Model EDI Agreement" prepared by the Commission of the European Communities (May 1991) reads as follows:

> "Unless otherwise agreed, a contract made by EDI will be considered to be concluded at the time and the place where the EDI message constituting the acceptance of an offer is made available to the information system of the receiver."

104. It may also be recalled that a study entitled "La formation des contrats par échange de données informatisées" recently prepared for the Commission of the European Communities within the TEDIS programme contains a chapter on the issues of time and place of formation of contracts. The conclusions of that study are that the receipt rule should be promoted as particularly suitable for EDI. The receipt rule is in line with articles 15(1), 18(2) and 23 of the United Nations Sales Convention, with the draft UNIDROIT Principles and with national legislation in a number of States.

105. At its previous session, the Working Group was agreed that any rules on the time of the formation of contracts in an electronic environment should be based on the principle of party autonomy. As to the definition of a possible rule to be applied in the absence of a prior agreement between the parties, it was agreed that the main purpose of such a rule should be to provide certainty to all parties involved.

106. There seems to be no disadvantage to adopting a rule to the effect that an EDI message becomes effective when it is made available to the information system of the recipient. According to such a rule, a contract would be formed at the moment when the acceptance of an offer became effective. Such a rule would also apply to determine the time of effectiveness of EDI messages such as shipping notices and invoices, which are not sent for the purpose of concluding a contract. It is submitted that , should such a rule be adopted, the terms "available to the information system of the recipient" should be defined in a restrictive way to ensure that only the information system directly under the control of the recipient would be covered, to the exclusion of any third-party service provider that could not be regarded as an agent of the recipient.

C. Place of formation

107. The place of formation of a contract may be of relevance for certain legal purposes. For example, it might be relevant for taxation or registration requirements, and it might constitute a factor for establishing court jurisdiction or for determining the law applicable to the contract or its required form.

108. The determination of the place of formation of a contract may raise particular difficulties in situations involving the use of EDI. The transmission of EDI messages might be initiated in different places, such as a place of business of the sender, or the place where the sender held its computers, or any place from where the sender might operate, for example, by means of a portable computer. During the transmission process, particularly

where third-party service providers are involved, EDI messages might travel through places that are irrelevant to the underlying commercial contract. At the last session of the Working Group, it was suggested that only the place where the message had been placed at the disposal of the recipient was sufficiently predictable to provide legal certainty as to the place of formation of a contract (see A/CN.9/360, para. 88). However, it was noted that devising the rule might be difficult in view of the possible involvement of several commercial parties and several third-party service providers, each of which might operate computers from different places. It was agreed that exceptions would probably need to be made to the receipt rule for those cases where the place of receipt was not objectively determinable by the parties at the moment when the contract was formed and for those cases where the place of receipt might have no relevance to the underlying transaction. It was suggested that the place of formation of a contract might be determined by reference to an objective event so as to avoid being linked inappropriately to, for example, the place where computers were located. In view of the possible unpredictability regarding the place of operation of the computer facilities of the recipient, the Working Group may wish to consider whether the place of business of the recipient would not be a more relevant and more predictable place for the formation of a contract.

D. General conditions

109. The main problem regarding general conditions in a contract is to know to what extent they could be asserted by one party against the other contracting party (see A/CN.9/333, paras. 65-68). In many countries, the courts would consider whether it could reasonably be inferred from the context that the party against whom general conditions were asserted had had an opportunity to be informed of their content or whether it could be assumed that the party had expressly or implicitly agreed not to oppose all or part of their application.

110. EDI is not, at least not at the current time, technically equipped, or even intended, to transmit all the legal terms of the general conditions that are printed on the backs of purchase orders, acknowledgements and other paper documents traditionally used by trading partners. A practical solution may be to incorporate the general conditions in a communication agreement concluded between the trading partners. However, some model agreements expressly exclude coverage of general conditions, based on the principle expressed in article 1 of the UNCID Rules (see A/CN.9/WG.IV/WP.53, Annex) that the interchange agreement should relate only to the interchange of data, and not to the substance of the transfer, which might involve consideration of various underlying commercial or contractual obligations of the parties.

111. At the previous session, various methods were mentioned of ensuring the applicability of general conditions to the contract formed by EDI messages, while not detracting from the cost effectiveness of EDI (see A/CN.9/360. para. 93). It was observed that the techniques used would have to ensure that the parties were aware of, or at least had the opportunity to familiarize themselves with, the content of the general conditions, that the principle of freedom of contract should be maintained, that the solutions needed to be simple so as not to aggravate "battle-of-forms" problems through the use of EDI, and that, at least until such time as technical obstacles to the use of standardized messages for the transmission of general conditions had been overcome, to some extent a hybrid system might have to be envisaged in which paper documents remained the repository of general conditions.

112. While the observation was made that the question of general conditions was a source of some uncertainty as regards the wider use of EDI and that consequently the development of rules in that area might at some future time be usefully considered, the Working Group took the view, subject to further developments in practice, that the question of general conditions was primarily a matter of the rights and obligations agreed upon by the parties.

113. It is submitted that no attempt should be made by the Working Group to solve, in the context of uniform rules on EDI, such questions as the "battle of forms", a question that is not typical of paper-based or any other specific means of communication. However, the Working Group might consider including in the uniform rules a provision to the effect that, where applicable law requires special acceptance of general conditions before a contracting party becomes bound, such an acceptance must be given in the prescribed form before a contract is concluded by EDI means.

VI. LIABILITY AND RISK OF A PARTY

114. The issue has been examined in previous reports (see A/CN.9/333, para. 76; A/CN.9/350, paras. 101-103 and A/CN.9/WG/IV/WP.53, paras. 82-83). It also formed part of the preliminary discussion of the legal issues of EDI at the previous session of the Working Group (see A/CN.9/360, paras. 97-103).

115. At its previous session, the Working Group was generally agreed that statutory provisions were needed with respect to the legal consequences of a failure or error in EDI communications, either as fall-back solutions when agreements by parties did not resolve a question or as statutory provisions protecting legitimate interests of parties. It was pointed out that it might be advisable to define such terms as "damages", "direct damages" and "indirect damages", and to examine further what kind of damages should be addressed in those statutory provisions.

116. The Working Group engaged in a discussion of two related questions that might arise when a message was delayed or not transmitted properly (see A/CN.9/360, paras. 97-103). One question concerned the liability for damages of a party who caused a failure or error in communication. The other question was which party was to bear the risk of loss resulting from a failure or error in communication. Views were expressed that in devising a statutory provision on those questions, appropriate weight should be given to the principle of freedom of contract.

117. A suggestion was made that the question of liability and risk might be addressed by a provision along the following lines:

> "Subject to the agreed procedures for authentication or verification, the risk and liability for any faulty transmission and resulting damage rests with the sender".

By way of explanation, it was added that the purpose of the opening phrase in the suggested provision was to make it clear that the provision addressed the situation where security procedures had been agreed upon and the recipient of the message observed those procedures.

118. It may be noted, however, that in certain cases it might be inappropriate to emphasize the liability of the sender, since loss could be caused not only by negligence of the sender, but instead in full or in part by negligence of the recipient, by concurrent negligence of both of the sender and the

recipient, or by a third person, for example in the case where the parties communicated through a value-added communication network.

119. A suggestion made at the previous session was to distinguish the question of liability for loss from the question of which party bore the risk of loss where nobody was liable for the loss. In this light, a provision on liability might be broadly modelled on the approach adopted in article 12 of the draft TEDIS Model Agreement (see A/CN.9/350, para. 103), which reads as follows:

> "Each party shall be liable for any direct damage arising from or as a result of any deliberate breach of this agreement or any failure, delay or error in sending, receiving or acting on any message. Neither party shall be liable to the other for any incidental or consequential damage arising from or as a result of any such breach, failure, delay or error.
>
> The obligations of each party imposed by this EDI agreement shall be suspended during the time and to the extent that a party is prevented from or delayed in complying with that obligation by force majeure.
>
> Upon becoming aware of any circumstance resulting in failure, delay or error, each party shall immediately inform the other party(ies) hereto and use their best endeavours to communicate by alternative means".

120. Also mentioned as a possible model for a provision on liability was article 16 of the draft SITPROSA Model Agreement (see A/CN.9/350, para. 103), which reads as follows:

> "16.1 The risk and liability for any faulty transmission and the resulting damages rests with the Sender:
>
> a. subject to the exceptions described in clause 16.2; and
>
> b. subject to the condition that the Sender will not be liable for any consequential damages other than those for which he would be liable in the case of a breach of contract in terms of the Main Contract or which have been specifically agreed to.
>
> 16.2 Although the Sender is responsible and liable for the completeness and accuracy of the TDM [Trade Data Message], the Sender will not be liable for the consequences arising from reliance on a TDM where:
>
> a. the error is reasonably obvious and should have been detected by the Recipient;
>
> b. the agreed procedures for authentication or verification have not been complied with."

121. It may be noted that the issue of liability is closely linked to the observance of commercially reasonable procedures for verification and security of communication. The view was expressed at the previous session that any statutory rule that might be prepared by the Commission should be more specific concerning those procedures. Articles 6, 7 and 8 of UNCID Rules were mentioned as citing the duty to observe such commercially reasonable procedures (see above, paras. 58-63).

122. The Working Group might wish to consider another approach, based on the UNCITRAL Model Law on International Credit Transfers. Bearing in mind the need to apply checking procedures to identify an error, it is submitted that

an error in transmission may consist of defects in reception that can be picked out by normal use of security procedures or by the intervention of a human operator and not by a computer, for example where a free-formatted text is garbled. There may also be situations where there is no way by which the recipient knew or could have known of the defect. In addition, a garbled message may or may not allow the recipient to identify the sender.

123. It is suggested that the uniform rules might state the obligations of the recipient with regard to the detection of errors, the obligations flowing from the detection of an error and the consequences of the recipient's compliance, or failure to comply, with its obligations. If the recipient knew or should have known that the message was garbled or somehow impossible to process, it should be under an obligation to notify the sender. In cases where the sender did not receive such notification due to the negligence of the recipient who failed to comply with applicable security procedures or to give the required notice, the uniform rules might state that the sender should be able to rely on the message as sent. In cases where the recipient notifies the sender of an error, the message might be given no effect. In cases where the recipient did not know and could not have known that there was an error in the message, the sender should be bound by the message as received by the recipient. It is submitted that such rules would be consistent with the provisions of the UNCITRAL Model Law on International Credit Transfers, particularly with articles 5(5), which reads as follows:

> "(5) A sender who is bound by a payment order is bound by the terms of the order as received by the receiving bank. However, the sender is not bound by an erroneous duplicate of, or an error or discrepancy in, a payment order if
>
> (a) the sender and the receiving bank have agreed upon a procedure for detecting erroneous duplicates, errors or discrepancies in a payment order, and
>
> (b) use of the procedure by the receiving bank revealed or would have revealed the erroneous duplicate, error or discrepancy.
>
> [...] Paragraph (5) applies to an error or discrepancy in an amendment or a revocation order as it applies to an error or discrepancy in a payment order."

VII. FURTHER ISSUES POSSIBLY TO BE DEALT WITH

A. Liability of a third party providing communications services

124. At its previous session, the Working Group discussed the liability of EDI network operators, who might cause loss by improper or untimely transmission of, for example, a contract offer, payment order, notice to release goods, or a notice that goods were damaged. In addition, a network operator might cause damage by failing to perform or by incorrect performance of value-added services that the network had undertaken to perform.

125. It may be recalled that various types of services may be performed by EDI networks. One category of networks consists of third parties who only transmit messages without providing additional value-added services (passive networks). Another type are third parties who provide value-added services such as verification, authentication, archiving, recording or copying. A further type, referred to also as central data managers, are third parties

whose management of the flow of information is essential for the functioning of a closed EDI network so that each party who wishes to join the network has to agree to conduct the transactions through the central data manager.

126. In practice, the liability of network operators is to a large measure restricted. In the case of network operators that have a public status, the restriction or exclusion of liability is often established in the law or regulation governing the functioning of the network. The responsibility of passive carriers of data (such as telephone, telex or facsimile networks) in particular is low or excluded. In the case of networks that have no such public status, liability restrictions are found in contracts with users of the communications services. In addition to excluding or placing financial limits on liability, liability restrictions generally concern the basis of liability and the burden of proof. Liability may be restricted also through rules determining that the operator was liable only for direct loss or loss that the operator could reasonably foresee; for example, when a payment order or an acceptance of a contract offer is not transmitted properly, the liability may be limited to the fee paid for the transmission and to the interest lost because payment was made late.

127. In devising liability rules it has to be borne in mind that EDI messages may have to travel through networks of various operators, including operators that are not in a contractual relationship with the sender or the addressee of the message, and that sometimes the user of the communication service does not know through which networks the message would travel.

128. An operator might offer different fees for a given service, depending on the level of liability accepted by the operator. It might be acceptable to allow a broad freedom of contract in excluding liability as long as the user has a reasonable choice to pay a higher fee for a higher level of liability and that competition exists among network operators.

129. Since it can be predicted that computer failure, transmission system failure and power failure will sometimes occur, EDI users, third-party service providers and the EDI community as a whole might be expected to plan so as to minimize the likelihood of such failure and to avoid or overcome the consequences. Some of the planning involved is common to all types of computer and data transmission activities and includes such matters as redundancy of equipment, back-up files and disaster recovery plans. It may be thought that in order to determine whether the computer failure, transmission system failure or power failure should constitute an exonerating event, it should be determined whether it could have been avoided or its consequences could have been avoided or overcome by proper planning in advance.

130. With the increased use of EDI, the likelihood of an error or fraud remaining undetected would diminish. For example, when a given transaction is implemented by a series of messages (e.g., purchase order, functional acknowledgement of the order, acceptance of offer, functional acknowledgement of the acceptance, shipment order, instruction to the carrier), electronic security measures are likely to alert the users in the event of alteration of data at a particular segment of the message chain.

131. At its previous session, the Working Group was generally agreed that in principle the users and the networks should be free to agree on the level of liability of the network. This freedom, however, should be limited by a mandatory provision ensuring that the liability of the network was not excluded or set at an unreasonably low level.

132. With regard to any statutory liability provision that might be prepared by the Commission, various approaches are possible. One possible approach would be to base the liability provision on the principle that the obligation of the network was to provide, to the best of its ability, the means to carry out the service ("obligation of means"). Another possible approach would base the provision on the principle that the network guaranteed the performance of the service ("obligation of result"). It may also be expected that the network should not be able to exclude its liability for serious instances of negligence or gross misconduct. Liability based on negligence could be expressed by setting out positive duties owed by the network to the user and by providing that the network is liable if it is in breach of such a duty. Alternatively, liability could be expressed by stating that the network is liable if it fails to take all the measures that could reasonably be required to avoid the damage. As to the damages, provisions might allow the network to exclude liability for indirect and unforeseeable damages.

133. Other factors that might be taken into account in devising rules on the liability of network operators might include whether it was the operator of the network or another party who constructed the communications system, whether it was the user or the network operator who decided that a particular communications system would be used, whether the network operator was the only party in control of the communications system, whether the communications system was offered to the user with or without a possibility to adapt the system to particular needs of the user, and whether the user fulfilled its duty to observe agreed security measures.

134. In view of the complexity and variety of the issues that might be considered, the Working Group may wish to decide whether the question of the liability of network operators could appropriately be dealt with by way of basic rules to be included in the uniform rules, for example mandatory provisions setting a minimum level of liability. An alternate solution would be to embark on the preparation of a detailed liability regime dealing with the above-mentioned and possibly also with additional issues.

B. Documents of title and securities

135. The issue has been examined in previous reports (see A/CN.9/350, paras. 104-108 and A/CN.9/WG/IV/WP.53, paras. 84-90). The issue was also addressed as part of the preliminary discussion of the legal issues of EDI at the previous session of the Working Group (see A/CN.9/360, paras 119-124).

136. At the previous session of the Working Group, the discussion on the topic of negotiability of documents of title in an EDI environment focused on maritime bills of lading. It may be noted, however, that legal issue of negotiability might also arise in the context of the increased use of EDI with regard to other documents of title or negotiable instruments. The Working Group may wish to request the Secretariat to prepare a study on those issues for discussion at a later session.